

Work Order ID 156462

Friday, January 27, 2017 1:22:51 PM

156462

Page 1

Item ID: D4025-5 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Fuel Quantity Sender
Start Date: 2/3/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 2/15/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: DAS Date: FEB 02 2017 Tooling: _____ Date: _____ Run Start ***NR1***
QC: 21 Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***
9-89

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4025	B								
100		0.00							<u>DAS</u> <u>13</u> <u>9-89</u>
100									
Purchasing	Memo	0.00							
Purchasing	Issue P/O: <u>38214</u>								
	Purchase part as per Dwg D4025								
	Part #: 224-260								
	Possible Supplier: Forsters Intruments								
	Material release note required								
110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.01							
Packaging	***HOLD IN VERTICAL POSITION AND MEASURE RESISTANCE								
	READING FOR LOWER LIMIT. ROTATE 180 DEGREES AND MEASURE								
	RESISTANCE FOR UPPER LIMIT AS PER DWG***								
	REMOVE TRANSPORT PIN								

4x SP17-02-23

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
								Completed By	
				Lead hand / Supervisor Approval Verification					
				QC / QA Coordinator Approval					

Root Cause				FAULT CATEGORY			
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong		
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions		
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance		
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect		
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing		
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved		
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing		
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Misabeled	☐ Finish		
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread		
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence		
Past Expiry Date ☐	☐ Manufacturing Process	OTHER : _____					
Misidentified ☐	☐ Past Due						

Work Order ID 156462

Friday, January 27, 2017 1:22:51 PM

156462

Page 2

Item ID: D4025-5 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Fuel Quantity Sender
Start Date: 2/3/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 2/15/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC6- Inspect dimensions to drawing	0.00				4			DAS 38 9-89 FEB 23 2017
120									
QC	Memo	0.00							
Quality Control	***REMOVE TRANSPORT PIN***								
130	Identify as per dwg & Stock Location: <u>St 240</u>	0.00				4			DAS 6 9-89 FEB 23 2017
130									
Packaging	Memo	0.01							
Packaging									
140	QC21- Final Inspection - Work Order Release	0.00							DAS 21 9-89 FEB 24 2017
140									
QC	Memo	0.07							
Quality Control									DAS 21 9-89 FEB 24 2017

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____					
Misidentified ☐	Past Due ☐						

Friday, January 27, 2017 1:22:50 PM

Page 1

156462

D4025-5

Required Qty: 4.00

Comments: IPP REV:A 11.11.22 NEW ISSUE DD VERF;EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
224-260		Purchased	No			110	Each	0.0000	1	4			
224-260									**	4x SP17-02-23			
Fuel Sender 224-260-SP													

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

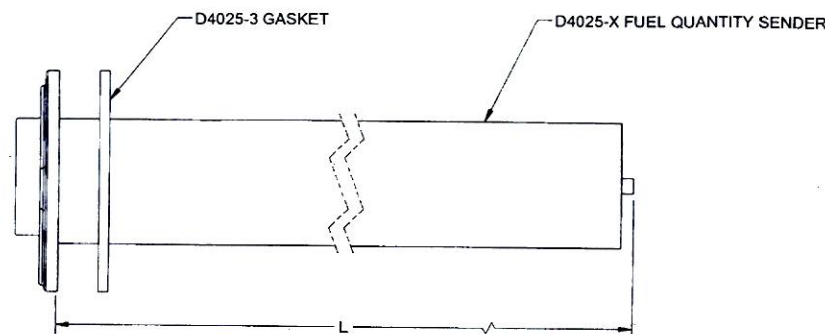
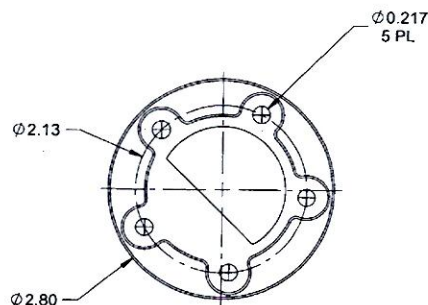
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design ☐	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data ☐	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling ☐	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre ☐	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material ☐	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport ☐	☐	Poor Information	☐	Crushing	☐	Countersink	☐
Tribal Knowledge ☐	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐
LOA ☐	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐
Substation ☐	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date ☐	☐	Manufacturing Process	☐	OTHER : _____			
Misidentified ☐	☐	Past Due	☐				

DART AEROSPACE PART NUMBER	JOHN CAMERON AVIATION PART NUMBER
D4025-1	VDO-M47-JCA
D4025-3	N/A
D4025-5	N/A

SPECIFICATION CONTROL DRAWING



DART PART NUMBER	DESCRIPTION	MANUFACTURER	MANUFACTURER PART NUMBER	POSSIBLE SUPPLIER	SUPPLIER PART NUMBER	LENGTH "L"	LOWER RESISTANCE LIMIT	UPPER RESISTANCE LIMIT	MATERIAL
D4025-1	FUEL QUANTITY SENDER	VDO SIEMENS	224-011-000-650	FORSTER INSTRUMENTS	224-265	25.59	82.2 ± 2.5 OHMS	2.5 ± 1.5 OHMS	N/A
D4025-3	GASKET	VDO SIEMENS	N/A	FORSTER INSTRUMENTS	226-053	N/A	N/A	N/A	RUBBER
D4025-5	FUEL QUANTITY SENDER	VDO SIEMENS	224-011-000-600	FORSTER INSTRUMENTS	224-260	23.62	85.3 ± 2.5 OHMS	2.5 ± 1.5 OHMS	N/A

- NOTES:
- 1) MATERIAL: N/A
 - 2) FINISH: N/A
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4025-X" AND B/N USING FINE POINT PERMANENT INK MARKER
 - 7) WEIGHT: D4025-1 - 0.39 lbs
D4025-3 - 0.01 lbs
D4025-5 - 0.37 lbs
 - 8) RECEIVING INSPECTION REQUIREMENTS:
 - a) REMOVE TRANSPORT PIN AND INSPECT FOR VISUAL DAMAGE
 - b) OVERALL CYLINDER LENGTH - SEE TABLE
 - c) HOLD IN VERTICAL POSITION AND MEASURE RESISTANCE READING FOR LOWER LIMIT
 - d) ROTATE 180° AND MEASURE RESISTANCE FOR UPPER LIMIT

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 156462 MJS
17-02-02

RELEASED
2011-11-16

B	ADDED -3, ADDED SUPPLIER PART NO.	PC	11.10.04
A	NEW ISSUE	HS	10.02.05
REV.	DESCRIPTION	BY	DATE
DESIGN	PC		
DRAWN	PC		
CHECKED	PC		
MFG. APPR.	PC		
APPROVED	PC		
DE APPR.	PC		
DATE	11.10.04		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA
DRAWING NO. D4025
REV. B
SHEET 1 OF 1
SCALE NTS

COPYRIGHT © 2010 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO35214**

Purchase Order Date 2/6/2017 12:43:36 PM
PO Print Date 2/6/2017

Page Number 1 of 2

Order From :
FORSTER INSTRUMENTS
7141 EDWARDS BLVD
MISSISSAUGA, ON L5S 1Z2
CANADA

VC-FOR002

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

FEB 06 2017

Contact Name
Vendor Phone 905 795 0555
Ship To Contact
Ship To Phone
Ship Via: FedEx Overnight collect
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
			Promise Date				
	224-260	Fuel Sender 224-260-SP	2/21/2017 Yes 2/21/2017		4.00 Each	\$90.50	\$362.00

AS PER DWG D4025 REV.B
B156462

NOTE: Part need to be tested for OHMS and please include report

SP17-02-23

Line Total: \$362.00

2	71401-45	PROCUREMENT QUALITY CLAUSES	2/21/2017		1.00	\$0.00	\$0.00
			No 2/21/2017				
	Procurement Quality Clauses A005 right of entry A016 personnel qualification A026 certification of material conformance A040 notification of quality escape A041 quality management system A043 retention of quality documents						

Note:

2/6/2017

**FORSTER INSTRUMENTS INC.**

7141 EDWARDS BLVD., MISSISSAUGA, ONTARIO L5S 1Z2
D - U - N - S 25 - 530 - 6649
PHONE (905) 795-0555 • FAX (905) 795-0570
TOLL FREE 1-800-661-2994 • TOLL FREE FAX 1-800-632-9943
Toll Free within Canada only

Automotive and Industrial Instruments, Controls and Equipment

TERMS AND CONDITIONS

- net 30 days from date of invoice unless otherwise stated.
- pay from invoice, statements upon request only.
- all claims for shortage must be made within ten days after receipt of goods.
- all claims for damage must be made with the carrier.
- all goods F.O.B. our Mississauga warehouse.
- orders subject to a minimum invoice value of \$50.00.
- goods cannot be returned without our Return Authorization Number.
- returned goods must be freight prepaid.
- any warranty expressed or implied is that of the manufacturer as stated in their literature.
- title of goods does not pass until goods are paid for in full.
- E. & O. E.

A/C 14.24

Page: 1

S
O
L
D

T
O
DART AEROSPACE LTD.
1270 ABERDEEN STREET

HAWKESBURY, ON K6A 1K7

S
H
I
P

T
O
DART AEROSPACE LTD.
1270 ABERDEEN STREET

HAWKESBURY, ON K6A 1K7

CUSTOMER	CUST. ORDER NO.	G.S.T. NUMBER	PROV. TAX NO.	S/M TYPE	PACKED BY
DARAER	P035214	R101272607		SLOA	
ORDER DATE	DATE SHIPPED	OUR SALES ORDER NO.	SHIPPING REF. NO.	SHIP VIA	
07.02.17		S72483	01	FED EX	
LINE NO.	QUAN.	SHIP.	B/O	PART NUMBER	DESCRIPTION

FED EX ACCT# 15179324-0

FUEL SENDER # 224-260-SP &
224-265-SP NEED
TO BE CERTIFIED FOR ACCURACY
PER
CUSTOMER DRAWING.
PARTS NEED TO BE TESTED FOR
OHMS

FUEL SENDERS AS PER CUSTOMER
SPECS.

SHIP FEB 17, 2017
DUE FEB 21, 2017

0 224-260-SP

FUEL SENDER, 23.6", 54 mm DIA.
Pick 4 Sets; P:0 C:4

PRC

LINE 1

0 REP950

TO RETURN/SHIP

FOI

✓ TEST EACH SENDER OHM RANGE AND INCLUDE REPORT WITH
SHIPMENT.

LINE 2

SP7-02-23

003 4

008 4

4
within
Spec



FORSTER INSTRUMENTS INC.



FEBRUARY 22, 2017

DART AEROSPACE LTD.
1270 ABERDEEN STREET
HAWKSBURY, ON
K6A 1K7

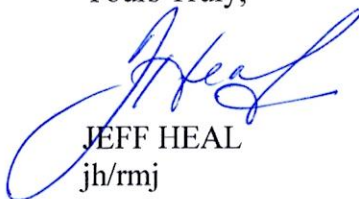
CERTIFICATE OF COMPLIANCE

We hereby certify that this shipping lot of VDO
PRODUCTS.

<u>Description</u>	<u>Part Number</u>	<u>Quantity</u>
FUEL SENDER, 23.6", 54 mm DIA.	224-260-SP	4

Were produced in accordance with raw material, dimensional and
Functional specifications as described on your purchase order
NBR: PO PO35214 DATED: FEBRUARY 17, 2017

Yours Truly,


JEFF HEAL
jh/rmj



FORSTER INSTRUMENTS INC.



FEBRUARY 22, 2017

DART AEROSPACE LTD.
1270 ABERDEEN STREET
HAWKSURY, ON
K6A 1K7

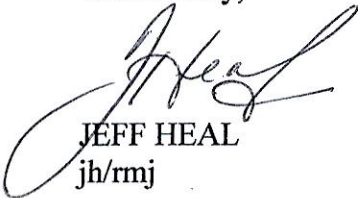
CERTIFICATE OF COMPLIANCE

We hereby certify that this shipping lot of VDO
PRODUCTS.

<u>Description</u>	<u>Part Number</u>	<u>Quantity</u>
FUEL SENDER, 23.6", 54 mm DIA.	224-260-SP	4

Were produced in accordance with raw material, dimensional and
Functional specifications as described on your purchase order
NBR: PO PO35214 DATED: FEBRUARY 17, 2017

Yours Truly,


JEFF HEAL
jh/rmj



FORSTER INSTRUMENTS INC.

**Gauge & Sender In-Process/ Final Inspection Form**

Sales Order #:	<u>72483</u>	Cust. Prod:	<u> </u>	Start Date:	<u>Feb 21/17</u>
Forster Part #:	<u>224-260-SP</u>	Rev:	<u>B</u>	Qty:	<u>4</u>
Product Description:	<u>Fuel Sender 23.6", 54mm</u>				

Harness In-Process	Tolerance	Within Spec.	Inspector's Initial:	Corrections Needed:
Continuity	.1/ .5 ohm			
Visual	N/A			
Pull Test	1 to 2 in/lbs.			

Gauge In-Process	Function	Within Spec.	Inspector's Initial:	Correction Needed:
Visual	N/A			

Final Inspection Gauge & Sender/Harness Assembled:				
	Tolerance	Within Spec.	Inspector's Initial:	Correction Needed:
Visual	N/A	✓	BJ	
Gauge/Speed Sw Settings	FS HZ @ SW. CL-			
Sender	Resistance	✓	BJ	
	Vpp			
	Freq:			
	Duty Cycle:			

Function:	Within Spec:	Inspector's Initial:	Correction Needed:
Test Assembly on test bench with test harness.	✓	BJ	

Comments:	FULL	EMPTY
<u>1st</u>	<u>1.9</u>	<u>85.7</u>
<u>2nd</u>	<u>1.5</u>	<u>85.7</u>
<u>3rd</u>	<u>1.5</u>	<u>87.5</u>
<u>4th</u>	<u>2.2</u>	<u>86.4</u>

in-Spec!

Completion Date

Feb 21/17